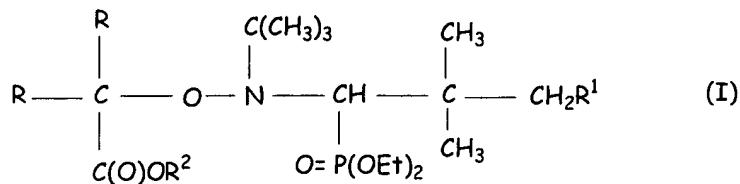
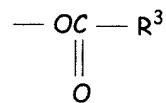


Claims

1. Alkoxyamines of formula:

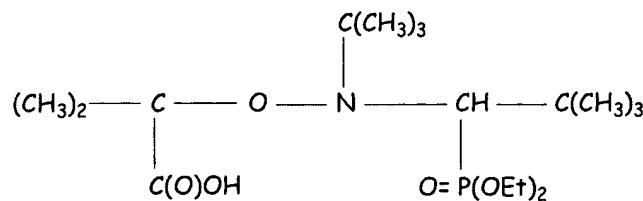


in which R represents a linear or branched alkyl radical having a number of carbon atoms ranging from 1 to 3, R¹ represents a hydrogen atom or a residue:

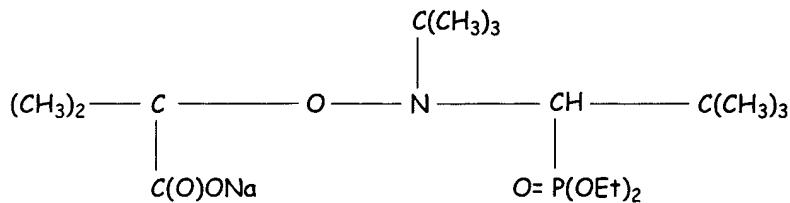


in which R³ represents a linear or branched alkyl radical having a number of carbon atoms ranging from 1 to 20, and R² represents a hydrogen atom, a linear or branched alkyl radical having a number of carbon atoms ranging from 1 to 8, a phenyl radical, an alkali metal, such as Li, Na or K, H₄N⁺, Bu₄N⁺ or Bu₃HN⁺, with the exception of the alkoxyamines of formula (I) in the formula of which R¹ = H and R² represents a linear or branched alkyl radical having a number of carbon atoms ranging from 1 to 6.

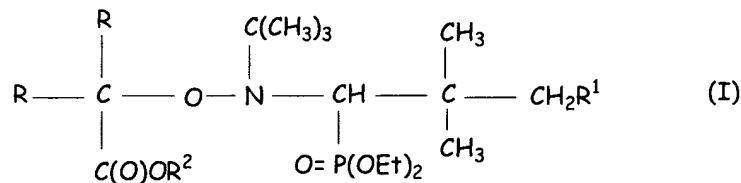
2. Methyl-2-[N-(tert-butyl)-N-(diethoxyphosphoryl-2,2-dimethylpropyl)-aminoxy]propionic acid:



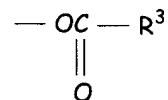
3. Sodium 2-methyl-2-[N-(tert-butyl)-N-(diethoxyphosphoryl-2,2-dimethyl-propyl)aminoxy]propionate:



4. Use as initiators for (co)polymerizations of at least one monomer which can be polymerized by the radical route under bulk, solution, emulsion, suspension or miniemulsion conditions of the alkoxyamines of formula:



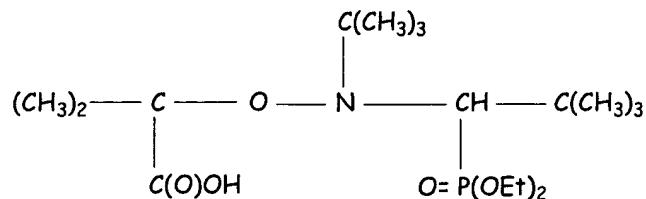
in which R represents a linear or branched alkyl radical having a number of carbon atoms ranging from 1 to 3, R¹ represents a hydrogen atom or a residue:



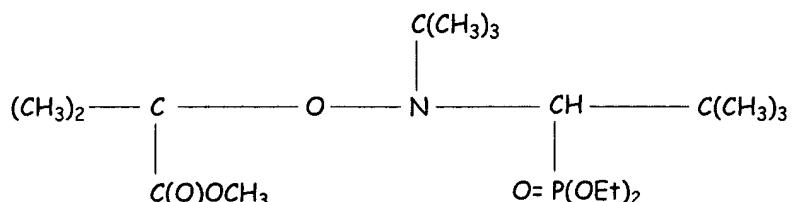
in which R³ represents a linear or branched alkyl radical having a number of carbon atoms ranging from 1 to 20, and R² represents a hydrogen atom, a linear or branched alkyl radical having a number of carbon atoms ranging from 1 to 8, a phenyl radical, an alkali metal, such as Li, Na or K, H₄N⁺, Bu₄N⁺ or Bu₃HN⁺, exhibiting a kinetic dissociation constant k_d, measured at 120°C by EPR, of greater than 0.05 s⁻¹ and preferably of greater than 0.1 s⁻¹.

5. Use according to Claim 4 of the alkoxyamines of formula (I) in which R = CH₃-, R¹ = H and R² = H, CH₃, (CH₃)₃C, Li and Na.

6. Use according to Claim 4 of 2- methyl-2-[N-(tert-butyl)-N-(diethoxyphosphoryl-2,2-dimethylpropyl)aminoxy]propionic acid:



7. Use according to Claim 4 of methyl 2-methyl-2-[N-(tert-butyl)-N-(diethoxyphosphoryl-2,2-dimethylpropyl)aminoxy]propionate:



8. Use according to Claim 4, characterized in that the monomer or monomers which can be polymerized by the radical route are chosen from vinylaromatic monomers, such as styrene, α -methylstyrene or sodium styrenesulphonate, dienes, such as butadiene or isoprene, (meth)acrylic or (meth)acrylate monomers, such as acrylic acid or its salts, methyl acrylate, ethyl acrylate, butyl acrylate, ethylhexyl acrylate, phenyl acrylate, 2-hydroxyethyl acrylate, 2-methoxyethyl acrylate, methoxypolyethylene glycol acrylates, ethoxypolyethylene glycol acrylates, methoxypolypropylene glycol acrylates, methoxypolyethylene glycol-polypropylene glycol acrylates or their mixtures, 2-(dimethylamino)ethyl acrylate (ADAME), [2-(acryloyloxy)ethyl]trimethylammonium chloride or sulphate, [2-(acryloyloxy)ethyl]dimethylbenzylammonium chloride or sulphate, methacrylic acid or its salts, methyl methacrylate, lauryl methacrylate, cyclohexyl methacrylate, allyl methacrylate, phenyl methacrylate, 2-hydroxyethyl methacrylate, 2-hydroxypropyl methacrylate, 2-ethoxyethyl methacrylate, methoxypolyethylene glycol methacrylates, ethoxypolyethylene glycol methacrylates, methoxypolypropylene glycol

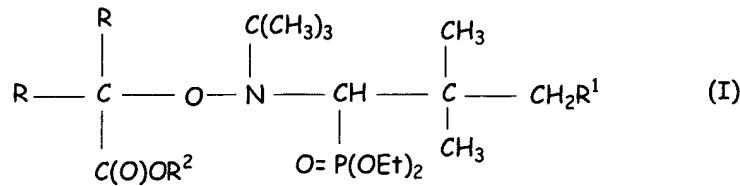
methacrylates, methoxypolyethylene glycol- polypropylene glycol methacrylates or their mixtures, 2-(dimethylamino)ethyl methacrylate (MADAME), [2-(methacryloyloxy)ethyl]trimethylammonium chloride or sulphate, [2-(methacryloyloxy)ethyl]dimethylbenzylammonium chloride or sulphate, 2,2,2-trifluoroethyl methacrylate, 3-methacryloyloxypropyltrimethylsilane, ethylene glycol methacrylate phosphate, hydroxyethylimidazolidone methacrylate, hydroxyethylimidazolidinone methacrylate, 2-(2-oxo-1-imidazolidinyl)ethyl methacrylate, acrylonitrile, optionally substituted (meth)acrylamides, such as acrylamide, 4-acryoylmorpholine, N-methyloacrylamide, acrylamidopropyltrimethylammonium chloride (APTAC), acrylamidomethylpropanesulphonic acid (AMPS) or its salts, methacrylamide, N-methyloacrylamide or methacrylamidopropyltrimethylammonium chloride (MAPTAC), itaconic acid, maleic acid or its salts, maleic anhydride, vinylpyridine, vinylpyrrolidinone, (alkoxy)poly(alkylene glycol) vinyl ethers or divinyl ethers, such as methoxypoly(ethylene glycol) vinyl ether or poly(ethylene glycol) divinyl ether, or a mixture of at least two abovementioned monomers.

9. Use according to Claim 8, characterized in that at least one of the monomers is butyl acrylate.

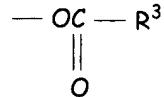
10. Use according to Claim 8, characterized in that at least one of the monomers is methyl methacrylate.

11. Use according to Claim 8, characterized in that the mixture of monomers is composed of butyl acrylate and of methyl methacrylate.

12. (Co)polymers obtained by (co)polymerization of at least one monomer which can be polymerized by the radical route under bulk, solution, emulsion, suspension or miniemulsion conditions in the presence of an alkoxyamine of formula:



in which R represents a linear or branched alkyl radical having a number of carbon atoms ranging from 1 to 3, R¹ represents a hydrogen atom or a residue:



in which R³ represents a linear or branched alkyl radical having a number of carbon atoms ranging from 1 to 20, and R² represents a hydrogen atom, a linear or branched alkyl radical having a number of carbon atoms ranging from 1 to 8, a phenyl radical, an alkali metal, such as Li, Na or K, H₄N⁺, Bu₄N⁺ or Bu₃HN⁺, exhibiting a kinetic dissociation constant k_d, measured at 120°C by EPR, of greater than 0.05 s⁻¹ and preferably of greater than 0.1 s⁻¹.

13. (Co)polymers according to Claim 12, characterized in that the monomer or monomers which can be polymerized by the radical route are chosen from vinylaromatic monomers, such as styrene, α-methylstyrene or sodium styrenesulphonate, dienes, such as butadiene or isoprene, (meth)acrylic or (meth)acrylate monomers, such as acrylic acid or its salts, methyl acrylate, ethyl acrylate, butyl acrylate, ethylhexyl acrylate, phenyl acrylate, 2-hydroxyethyl acrylate, 2-methoxyethyl acrylate, methoxypolyethylene glycol acrylates, ethoxypolyethylene glycol acrylates, methoxypolypropylene glycol acrylates, methoxypolyethylene glycol-polypropylene glycol acrylates or their mixtures, 2-(dimethylamino)ethyl acrylate (ADAME), [2-(acryloyloxy)ethyl]trimethylammonium chloride

or sulphate, [2-(acryloyloxy)ethyl]dimethylbenzylammonium chloride or sulphate, methacrylic acid or its salts, methyl methacrylate, lauryl methacrylate, cyclohexyl methacrylate, allyl methacrylate, phenyl methacrylate, 2-hydroxyethyl methacrylate, 2-hydroxypropyl methacrylate, 2-ethoxyethyl methacrylate, methoxypolyethylene glycol methacrylates, ethoxypolyethylene glycol methacrylates, methoxypolypropylene glycol methacrylates, methoxypolyethylene glycol-polypropylene glycol methacrylates or their mixtures, 2-(dimethylamino)ethyl methacrylate (MADAME), [2-(methacryloyloxy)ethyl]trimethylammonium chloride or sulphate, [2-(methacryloyloxy)ethyl]dimethylbenzylammonium chloride or sulphate, 2,2,2-trifluoroethyl methacrylate, 3-methacryloyloxypropyltrimethylsilane, ethylene glycol methacrylate phosphate, hydroxyethylimidazolidone methacrylate, hydroxyethylimidazolidinone methacrylate, 2-(2-oxo-1-imidazolidinyl)ethyl methacrylate, acrylonitrile, optionally substituted (meth)acrylamides, such as acrylamide, 4-acryoylmorpholine, N-methyloacrylamide, acrylamidopropyltrimethylammonium chloride (APTAC), acrylamidomethylpropanesulphonic acid (AMPS) or its salts, methacrylamide, N-methyloacrylamide or methacrylamidopropyltrimethylammonium chloride (MAPTAC), itaconic acid, maleic acid or its salts, maleic anhydride, vinylpyridine, vinylpyrrolidinone or a mixture of at least two abovementioned monomers.

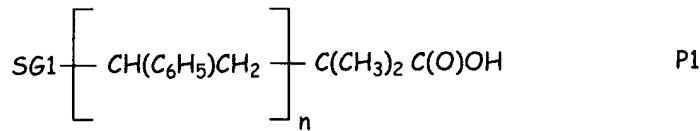
14. Polymers according to Claim 13, characterized in that at least one of the monomers is butyl acrylate.

15. Polymers according to Claim 13, characterized in that at least one of the monomers is methyl acrylate.

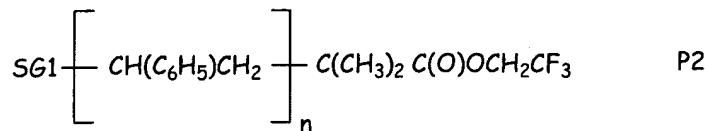
16. Copolymers according to Claim 13, characterized in that the mixture of monomers is composed of butyl acrylate and of methyl methacrylate.

17. Use of the (co)polymers according to Claim 12 for carrying out chemical conversions.

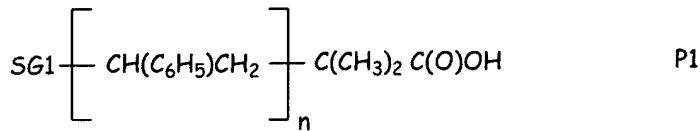
18. Use according to Claim 17 of a polymer P1 with the structure:



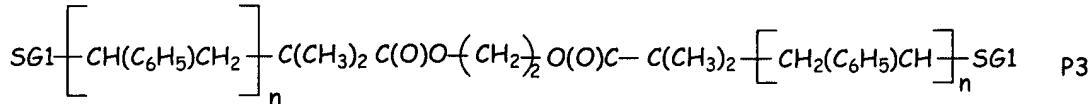
to obtain a polymer P2 with the structure:



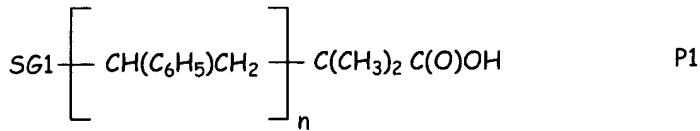
19. Use according to Claim 17 of a polymer P1 with the structure:



to obtain a polymer P3 with the structure:



20. Use according to Claim 17 of a polymer P1 with the structure:



to obtain a polymer P4 with the structure:

